

## A *Jacaranda* from the Pliocene of Brazil

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Some years ago the present writer, in collaboration with Hollick, described<sup>1</sup> a considerable late Tertiary flora from Bahia, Brazil, and it was concluded that the age was probably Pliocene. I have recently received additional material from the same region and among the novelties contained in the latter is an undoubted species of the Bignoniaceous genus *Jacaranda* of Jussieu.

This may be called *Jacaranda tertiaria* and described as follows:

Leaves odd-pinnate, elongate, linear in outline, at least 7 centimeters long and not over 2 centimeters wide, with a distinctly but not prominently alate stipe and at least 14 pairs of leaflets.

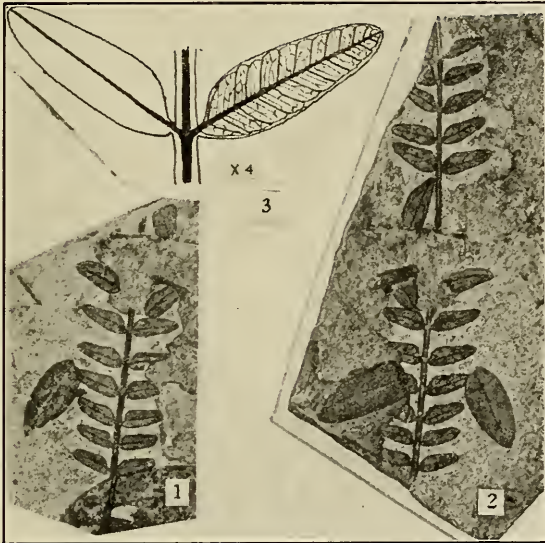
Leaflets small, opposite, diverging at wide angles, regularly spaced, somewhat rhomboidal in outline, widest toward the base, more nearly equilateral toward the tip, which is obtusely pointed. Base markedly inequilateral, the proximal side narrowly straighter. Texture subcoriaceous. Margins entire. No traces of pubescence. Length 6 to 7 millimeters. Maximum width 2 to 3 millimeters. Midvein relatively stout and prominent, approximately straight. Secondaries numerous, diverging at wide angles, rather straight to the marginal region and rather abruptly camptodrome.

Fairly complete specimens of this interesting species are available and there can be no doubt of its botanical identity. When it comes to comparisons with individual existing species of *Jacaranda* the relationships are not so clear. This is due to the rather close similarity of several of the small leafed pinnate forms, to considerable variations in the size of the leaves in existing species, and to some extent to variations in form of the leaflets, particularly as to the acuteness of the tips.

Among the most similar existing species are *Jacaranda brasiliensis* Persoon—a Campos undershrub, *Jacaranda mimosae-folia* D. Don of southern Brazil and northern Argentina, and

<sup>1</sup> Hollick, A. and E. W. Berry, Johns Hopkins Studies in Geology, No. 5, 1924.

*Jacaranda filicifolia* (Anderson) D. Don of the lower Orinoco and Guiana region. In some respects the last is the most similar, although there is little difference in the degree of resemblance of the three. *Jacaranda filicifolia* is apt to be more acutely tipped, although not invariably so, is apt to be slightly larger, and invariably has fewer leaflets, at least in the material that I have seen. This last statement is also true of *Jacaranda brasiliensis*. In this feature *Jacaranda mimosaeifolia* is most like the fossil.



*Jacaranda tertiaria* Berry from the Pliocene of Brazil.

1, 2. Leaves, nat. size.

3. Enlargement to show winged stipe and venation.

The genus has about two score existing species, ranging in size from undershrub and chapparal growth of the Brazilian Campos to large trees of less dry regions. The area of distribution extends from the Bahamas and Central America to northern Argentina and from the Marañon valley in Peru and the Montaña zone of the central Andes to the Atlantic. It is unfortunate that the evidence of relationship to existing species is not more conclusive. The balance of the evidence is slightly in favor of *Jacaranda mimosaeifolia* or *filicifolia* rather than the

more typical Campos species, although there is nothing conclusive about these comparisons.

But two other fossil species have been referred to *Jacaranda*. These are *Jacaranda potosina* Berry<sup>1</sup> from the Pliocene of Bolivia and *Jacaranda borealis* Ettingshausen<sup>2</sup> of the Oligocene (Sannosian) of the Tyrol, the latter based upon both leaflets and seeds. Neither of these can be considered to be entirely beyond doubt. It may be repeated that I regard *Jacaranda tertiaria* as botanically beyond suspicion.

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<sup>1</sup> Berry, Edward W., U. S. Natl. Museum Proc., vol. 54, p. 160, pl. 18, fig. 14, 1917.

<sup>2</sup> Ettingshausen, C. von Tertiärflora von Haering, p. 59, pl. 20, figs. 12-20, 1855.